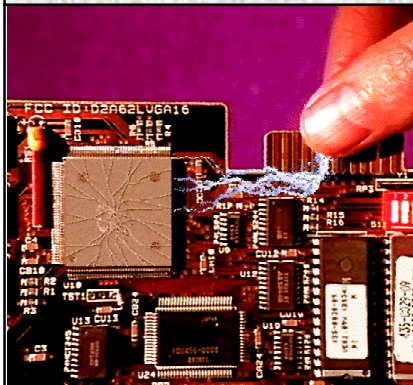


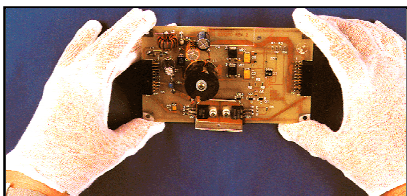
ELECTROSTATIC DISCHARGE [ESD] GENERAL REQUIREMENTS



ELECTROSTATIC DISCHARGE (ESD) GENERAL REQUIREMENTS

Electrostatic Discharge (ESD) is the rapid, uncontrolled discharge and transfer of accumulated electrical charge between two or more bodies at different electrical potentials, often resulting in significant Electrical Overstress (EOS) damage to sensitive electrical / electronic components.

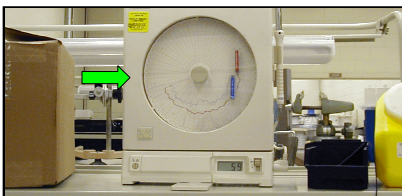
The best prevention program is a combined effort aimed at the prevention and the controlled elimination of static charges, through the practice of proper behavior / procedures, workstation design and layout, environmental controls, tooling, and component handling.



CLOTHING REQUIREMENTS

Non-static generating clothing shall be worn in ESD-protected areas or static dissipative smocks shall be worn as an outer garment. Finger cots and gloves, when worn in an ESD-protected area, shall be made of static dissipative, lint-free, particle-free materials.

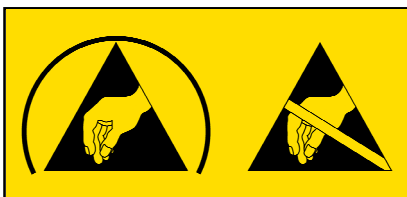
[NASA-STD-8739.7 \[7.7 \]](#)



HUMIDIFICATION

The relative humidity shall be monitored and maintained in ESD-protected work areas at 30% to 70%. At levels below 30%, additional precautions shall be employed (e.g.: air ionizers, humidifiers, etc.).

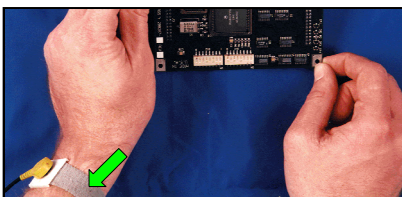
[NASA-STD-8739.7 \[7.2.7 \], \[9.2.1.d \]](#)



IDENTIFICATION / MARKING

ESDS items, equipment, and assemblies shall be identified so as to warn personnel before any ESD damaging procedure can be performed.

[NASA-STD-8739.7 \[8.5 \]](#)



PERSONNEL GROUNDING DEVICES

Personnel grounding devices (such as wrist straps) shall be supplied to all personnel working with or handling ESDS items to prevent the accumulation of dangerous electrostatic charge levels.

[NASA-STD-8739.7 \[7.2.5 \], \[8.3 \]](#)

NASA WORKMANSHIP STANDARDS



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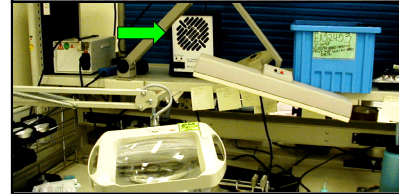
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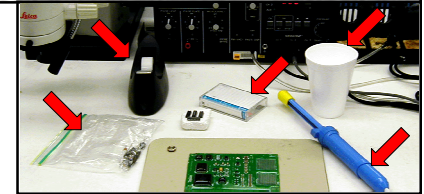
ELECTROSTATIC DISCHARGE [ESD] GENERAL REQUIREMENTS (cont.)



PREVENTATIVE EQUIPMENT

Air ionizers are recommended where grounding is impractical, where extremely ESD sensitive devices are used (<100V HBM), or where additional prevention against EOS / ESD are desired.

[NASA-STD-8739.7 \[7.2 \]](#)



PROHIBITED MATERIALS

The area shall be maintained in a clean and orderly condition. Smoking, eating, and drinking in ESD-protected areas shall not be permitted. Unapproved tools, static generating materials, and/or materials unessential to the fabrication area are also prohibited at the workstation.

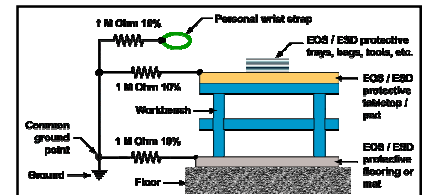
[NASA-STD-8739.7 \[7.2.2 \]](#)



PROTECTIVE PACKAGING

Electrostatic protective packaging shall prevent the generation of charge and provide protection from strong electrostatic fields. Materials used shall satisfy the resistivity requirements to avoid triboelectric charge build-up.

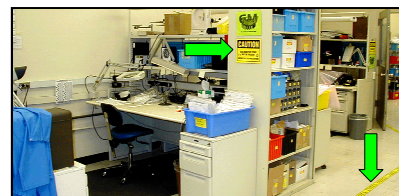
[NASA-STD-8739.7 \[7.3 \]](#)



WORKSTATION GROUNDING SYSTEM

All work surfaces / workstations in an ESD-protected area shall be static dissipative and electrically connected to the common point ground system.

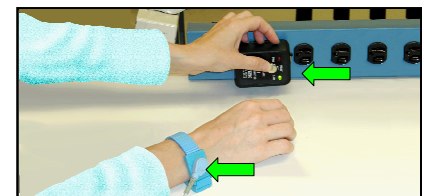
[NASA-STD-8739.7 \[7.2.3.a \]](#)



WORKSTATION IDENTIFICATION / ACCESS

The ESD-protected area shall be clearly identified by prominently placed signs and marking systems (barrier tape, partition, rope guard, etc.). Access to such areas shall be limited to trained and equipped personnel.

[NASA-STD-8739.7 \[7.2.1 \]](#)



WRIST STRAP TESTING

A wrist strap tester shall be available in all areas where ESDS items are handled. Wrist strap and foot grounding devices shall be tested daily.

[NASA-STD-8739.7 \[7.1.2 \], \[7.6.3 \]](#)

NASA WORKMANSHIP STANDARDS



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